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Project Spotlight

Noon Logistics Hub
Riyadh, Saudi Arabia

SFRC ground bearing Freeplan® 'jointless' floor slab

Twintec Saudi LLC recently completed it's latest project, the noon Logistics Hub in Riyadh, which covers a total area of 176,623m2 of Steel Fibre Reinforced Concrete (SFRC) flooring solution. Through the total offer concept of Design-Build-Guarantee using Twintec Freeplan and Twinplan, the hub's strategic design includes various technical studies and approaches that were selected to meet each area's specific requirements and optimize efficiency.

Partly owned by Public Investment Fund (PIF) and Emaar Properties, this project is expected to cater and fulfill the remarkable increase in the e-commerce industry that will enable the rapid delivery of products to millions of customers throughout Saudi Arabia.

Twintec's scope of work on the project consists design and build of flooring works using Steel Fibre Reinforced Concrete (SFRC) flooring solution. The project is divided into three major phases that consist of various flooring thicknesses and floor types strategically designed for each area's specific purposes.

Project Data

Owner: AlMuhaibdib	End User: noon
Consultant: HCO	Project Manager: IPMC
Main Contractor: Amana	Flatness: TR34 4th Edition 2013
Fibre Type: 4D Dramix 80/60BG	Fibre Dosage: 20kg/m^3
Pouring Days: 117 Days	Completion Date: June 2023

One of the most integral parts of this project is the VNA (very narrow aisle) area which requires designing and constructing a DM floor slab. In very-narrow-aisle (VNA) warehouses, forklifts travel 6-foot-wide aisles between storage racks with the aid of rack-mounted rails or a wire guidance system embedded in the floor. While moving down the aisles, these lift trucks can raise their forks to retrieve or place products at various levels.

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For these forklifts to perform as intended, defined-traffic floors must be extraordinarily flat and level. Since the lift truck travels the same route over and over, the smoothness of the wheel paths most especially in Defined Movement (DM) aisles becomes extremely important. Although tolerance only needs to be confirmed in the wheel tracks, each of the traffic paths should be directly measured, using a continuous - recording floor profilometer configured to run exactly in the wheel tracks.

Design:

The Freeplan® and Twinplan® floor slab reinforcement was designed with a 20 kg/m3 dosage of 4D Dramix 80/60 BG steel fibres provides the 37Mpa concrete a high ductility.

The floor slabs were designed with various thicknesses to comply with the loading requirements and specifications. Zone A (VNA / RT Areas) floor slab was design with 190mm thickness to carry point load of 130 kN with base plate of 100x160mm. The Zone B (shelving mezzanine areas) floor slab was designed with 340mm thickness to carry point load of 650kN with base plate of 450x450mm while the Zone C (marshaling areas) floor slab was designed with 170mm thickness to carry UDL of 50 kN and MHE axle load of 95kN.

The following design codes have been used in the design of this project.

- TR34 - Concrete Industrial Ground Floors – 4th Edition 2013
- Steel fibres classified according to the ASTM A-820.

Built:

With the combined resources of state-of-the-art equipment, highly skilled and experienced manpower alongside with site management professionals, a significant reduction on casting timeline was implemented from the traditional approach of 324 days to 117 days resulting in approximate savings of 63% in our project timeline.

Guarantee:

WE'VE GOT YOU COVERED

As we truly value our commitment to provide worry-free, high performance, high quality, and aesthetically superior floor slab, a 10-year guarantee is given to each noon project that validates Twintec's capability to meet and exceed the project requirements and specifications.

noon Logistics Hub, Riyadh Saudi Arbia

Contact the Twintec Saudi LLC business team for further information:

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